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(54) Method of Fabricating Coatings

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Specifications

1. Name of Invention: Method of Fabricating Coatings

2. **Scope of Patent Application:** In a method of fabricating coating material by spreading a coating liquid on a substance to be coated to make a coating layer, suctioning the coating liquid from the edges?? of the said coated layer while the said coating layer is drying and then drying the above coating layer, a method of making a coating substance characterized by spraying a liquid onto the thickly coated part from the center of a suction nozzle that suction off the coating liquid, combining this liquid with the coating solution of the coated thick area and drawing it into a suction nozzle.

3. Detailed Explanation of Invention

This invention is one bearing on a method of manufacturing coating.

Generally, when a coating liquid is applied to a substance to be coated such as photo film base, etc., a thickened coating layer forms at the edges?? due to the effects of surface elasticity. The presence of these thickened edges?? markedly delays drying of the coated layer overall. Because of this, excessive drying strength is required. And, if one leaves these edges?? in an inadequately dried condition, the edge's coating liquid will stick to the xxxx rollers and be damaged. Or, if these edges?? feed onto the roller while inadequately dried, the edges?? will stick to the forward parts, giving rise to such damage as the coated material tearing when unwound in later manufacturing processes.

Known ways to eliminate such damage are the approach of doing coating by applying the coating liquid while exposing the surface to be coated to a spray of steam at both edges of the material being coated, and the method of forced drying by blowing heated air only on the edges?? of the coated layer in addition to normal drying. But, such methods need elaborate equipment and are quite troublesome to operate.

A way to eliminate such difficulties, known from Patent Release 52-38407, is using a liquid-suctioning bib (suction nozzle) which has an insulating jacket and suctioning the coating liquid at the edges?? of the coating layer. Yet, it has been found that with such a device the end of the bib's nozzle often becomes clogged with coating solution that adheres to it when applying coating for an extended time, so that it cannot adequately function.

So, the purpose of this invention is to provide a method to make a coating layer on the thick part of the coated edges?? which does not clog the nozzle end during long coating times due to coating solution adhering.

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In a fabricating method for a coating material whereby one applies a coating solution to material to be coated to form a coating layer, suction up coating solution from the sides?? of the said coating layer in a xxxx which the said coating layer xxxxs, and then xxxxs the above coating layer, the goal of this invention is achieved by spraying a liquid onto the edges?? of a coating layer from the center of a suction nozzle that suction up coating solution, and by suctioning with this nozzle both this liquid and the coating solution of the coating layer xxxx.

We explain the details of this invention with the figures for the application example.

In Figures 1 and 2 suction nozzle 1 has suction port 2 on one end and liquid-extraction port 3 on the side. Inside, it is made so that xxxx screw 7 installed close to external liquid xxxx of liquid-spray nozzle by xxxx screw 6 which holds liquid spray nozzle 4 at the xxxx part 5 of suction nozzle 1 is xxxxed; and by having liquid-spray nozzle 4 rotate with respect to suction nozzle 1, one can voluntarily control the spacing of suction port 2 and liquid spray port 3 of liquid spray nozzle 4.

On the suction nozzle's side are three xxxx screw holes 9. One xxxxs xxxx bolts 10 in these to firmly attach one end of xxxx bolts 10 to the outside of liquid-spray nozzle 4. When one turns each of the three xxxx bolts 10, they move in the direction of their axis so that one can shift their position vis-a-vis suction port 2 and liquid-spray nozzle 4's liquid-spray port 3. The opposite end of liquid-spray nozzle 4's liquid-spray port 3 is made so to be attachable?? to the bib that guides liquids. Suction nozzle 1's end 1a is made so to be attachable?? to suction nozzle 1's main body 1b. Dome part 1c of end 1b is made of a transparent material to facilitate inspections.

Next, we will explain how to apply this device when one applies a coating material having composite layers including a gelatin that gels the coating layer and dries it.

After applying a coating liquid in the xxxx xxxx process, suction port 2 is set immediately opposite thick part 11 of material to which coating 12 has been applied as shown in Figure 3, fixing this invention's suction nozzle in a position where it can contact the coating solution. It connects liquid-spray nozzle 4's xxxx end and liquid-storage vat to the pump's exhaust port via a pipe and connects liquid-extraction port 3 to a hydraulic device. With this arrangement if suctioning is done through the liquid-extraction port while sending warm water to liquid-spray nozzle 4, the coating solution of the thickly coated part that moves the xxxx of suction port 2 will be suctioned from suction port 2 with the warm water sprayed from liquid-spray nozzle 3; and the coating solution of the coated part's thick area will be removed. The liquid-spray nozzle, not being?? attached to the pump's exhaust port, is fed enough water merely by being connected by the piping to a warm-water vat.

The conditions of this xxxx can easily be found by experiments, but were as follows for this example:

Diameter of liquid-extraction port	5.5mm ϕ
Pressure at liquid-extraction port	-900mm/Aq[??]
Diameter of liquid-extraction hole	4mm ϕ
Liquid volume through spray nozzle	200cc/min
Gap between duction port 2's tip and substance to be coated	180 μ
Gap between spray port 10's outer wall & inner wall of suction nozzle 10's dome	1.5~2mm

The coating [??] removal device made with this invention has the advantage of making stable, extended operation possible without gumming up the suction port when removing thick coating solutions through having applied a coating liquid easily hardened by gelling, etc., by evaporating xxxx from the coating liquid or by chilling.

4. Simple Explanation of Figures

Figure 1 is a plane diagram of an application example of the thick xxxx removal device of this invention.

Figure 2 is a cross-sectional diagram of the device shown in Figure 1.

Figure 3 is a diagram illustrating in cross section the position relative to the coating substance.

[Keying symbols]

1 .. Suction nozzle	6 .. xxxx screw
1a .. Suction nozzle 1's tip	7 .. xxxx screw
1b .. Body of suction nozzle	8 .. Liquid spray port
1c .. Dome of suction nozzle	9 .. xxxx screw hole
2 .. Suction port	10 .. xxxx bolt
3 .. Liquid-extraction port	11 .. Thick xxxx part
4 .. Liquid-spray nozzle	12 .. Substance to be coated
5 .. Suction nozzle 1's rear surface	

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